Engineered Probiotics as Therapeutic Delivery Vehicles

Lactic acid bacteria (LAB) have been part of the human diet for thousands of years due to their role in a variety of food fermentation processes. With over 200 species described, the largest genus within the group of LAB is *Lactobacillus*. Several lactobacilli are robust organisms that are able to withstand harsh conditions such as ethanol and stomach acid, which makes them attractive vehicles for the development of industrial producer strains and biotherapeutics, respectively. One of the foci of the Van Pijkeren Laboratory is to exploit probiotic *Lactobacillus reuteri* to design and develop biotherapeutics. We have developed high-throughput genome engineering approaches for *L. reuteri*, including CRISPR-Cas genome editing, which provides us with a carte-blanche for our ability to produce therapeutic molecules. In this seminar, the development and application of therapeutic *Lactobacillus reuteri* will be discussed.

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